The Harman Kardon Model HK1200/HK1400 STEREO LINE AMPLIFIER

Manual 190A

HK1200/HK1400

Technical Manual

The following marks found in the parts list of this manual identify the models as follows.

BK : North America area model Black version
IB : International model Black version
WB : Asia/Oceania model Black version

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harman/kardon
Parts and Service Office
240 Crossways Park West, Woodbury, N.Y. 11797
1112-0530A152 G9310 1500 Printed in Japan

SPECIFICATIONS

	Nominal	Limit
RMS Output Power		
8 Ω, 1kHz THD 0.1%	33.5W	≧ 25W(Model : HK1200)
	48.4W	≧ 40W(Model : HK1400)
4 Ω, 1kHz THD 0.3%	49W	≧ 40W(Model : HK1200)
	75.4W	≧ 60W(Model : HK1400)
High-instantaneous Current Capability (HCC)	37A	≧ 30A (Model : HK1200)
	43.5A	≧ 35A (Model : HK1400)
Half Power Bandwidth (THD 0.1%)	<10Hz-100kHz	<10Hz-70kHz
Frequency Response (at -3dB down)	0.1Hz-420kHz	<1Hz- ≧350kHz (Model : HK1200)
	0.1Hz-410kHz	<1Hz- ≧350kHz (Model : HK1400)
Input Sensitivity		
(at 25W output) Normal :	135mV	>135mV±25mV/39kΩ±5kΩ (Model : HK1200)
(at 25W output) -10dB :	440mV	>440mV±25mV/39kΩ±5kΩ (Model : HK1200)
(at 40W output) Normal :	135mV	>135mV±25mV/39kΩ±5kΩ (Model : HK1400)
(at 40W output) -10dB :	442mV	>442mV±25mV/39kΩ±5kΩ (Model : HK1400)
Signal to Noise Ratio	100dB	≧ 90dB(Model : HK1200)
	98.5dB	≧ 90dB(Model : HK1400)

	Nominal	Limit
Channel Separation (at 10kHz)	65 dB	≧ 55 dB
IM Distortion Ratio (at 1W)	0.065%	≦ 0.1% (Model : HK1200)
	0.052%	≦ 0.1% (Model : HK1400)
Damping Factor (at 1Hz)	55.7	≧ 45 (Model : HK1200)
	84.5	≧ 75 (Model : HK1400)
DC Output Voltage (at 4Ω)		
L channel	0mV ± 60mV	
R channel	0mV ± 60mV	
Idling Current (at 8Ω)	75mA	75mA ± 5mA
Dimensions (W x H x D)	17.4" x 4.1" x 13.7" (443 x 105 x 347 mm)	
Weight	18.3 lbs. / 8.3 kg (Model : HK1200)	
	15.0 lbs. / 6.8 kg (Model : HK1400)	
Power Supplies		
North America area model	AC120V, 60 Hz	
International and Asia/Oceania models	AC230/240V, 50/60Hz	
Power Consumption	110W (Model : HK1200) BK	
	130W (Model : HK1200) IB WB	
	140W (Model : HK1400) BK	
	160W (Model : HK1400) IB WB	

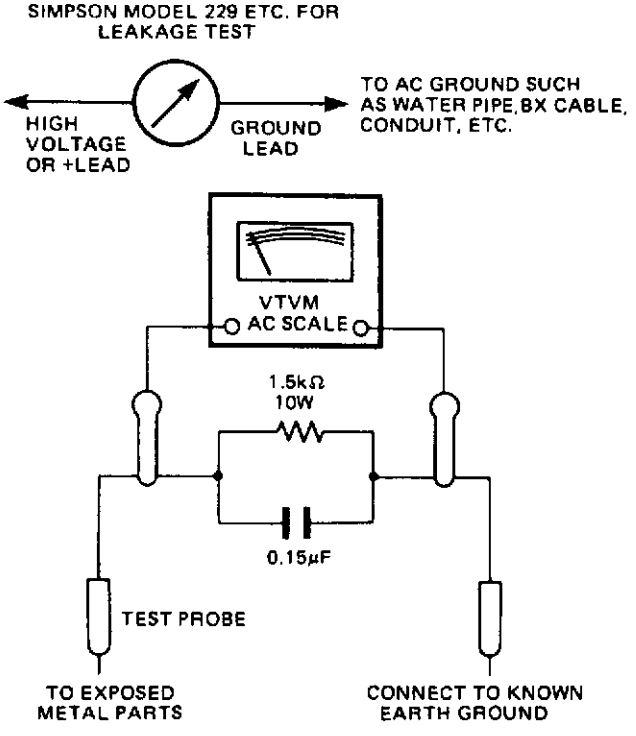
These specifications are service target specs.

Specifications and components are subject to change without notice. Overall performance will be maintained or improved.

LEAKAGE TEST (FOR SERVICE ENGINEERS IN THE U.S.A)

Before returning the unit to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc. which were removed for servicing are properly reinstalled.
3. Be sure that no shock hazard exists; check for leakage current using Simpson Model 229 Leakage Tester, standard equipment item No. 21641, RCA Model WT540A or use alternate method as follows: Plug the power cord directly into a 120-volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connect a 1500 Ohm, 10-watt resistor paralleled by a 0.15 μF capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 Ohms per volt, or higher sensitivity to measure the AC voltage drop across the resistor. (See Diagram.) Move the resistor connection to each exposed metal part having a return path to the chassis (antenna, metal, cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor. (This test should be performed with the power switch in both the On and Off positions.)


SIMPSON MODEL 229 ETC. FOR LEAKAGE TEST
TO EACH EXPOSED METAL SURFACE OF UNIT UNDER TEST
HIGH VOLTAGE OR +LEAD
GROUND LEAD
TO AC GROUND SUCH AS WATER PIPE, BX CABLE, CONDUIT, ETC.
VTVM AC SCALE
1.5kΩ 10W
0.15μF
TEST PROBE
TO EXPOSED METAL PARTS
CONNECT TO KNOWN EARTH GROUND

A reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the unit to the owner.

DISASSEMBLY PROCEDURES (REFER TO PAGES 7,14 AND 20)

1 CABINET TOP (AB) REMOVAL

Remove 6 screws (A) and then remove the Cabinet Top (AB).

2 FRONT PANEL ASS'Y (AA) REMOVAL

1. Remove the Cabinet Top (AB), referring to the previous step 1.
2. Remove 5 screws (B) and then remove the Front Panel Ass'y (AA).

3 PRE AMP P. C. BOARD (PCB-4) REMOVAL

1. Remove the Cabinet Top (AB), referring to the previous step 1.
2. Remove the Front Panel Ass'y (AA), referring to the previous step 2.
3. Remove 2 screws (C) and then remove the Rotary Knobs (150) and remove the Push Button (147).
4. Remove 11 screws (D) and then remove the Pre Amp P. C. Board (PCB-4).
   At this time, unsolder the lead wires connected to the Pre Amp P. C. Board (PCB-4).

4 MAIN P. C. BOARD (PCB-1) REMOVAL

1. Remove the Cabinet Top (AB), referring to the previous step 1.
2. Remove 5 screws (E) and then remove the Main P. C. Board (PCB-1).
   At this time, unsolder the lead wires connected to the Main P. C. Board (PCB-1).

5 POWER P. C. BOARD (PCB-8) REMOVAL

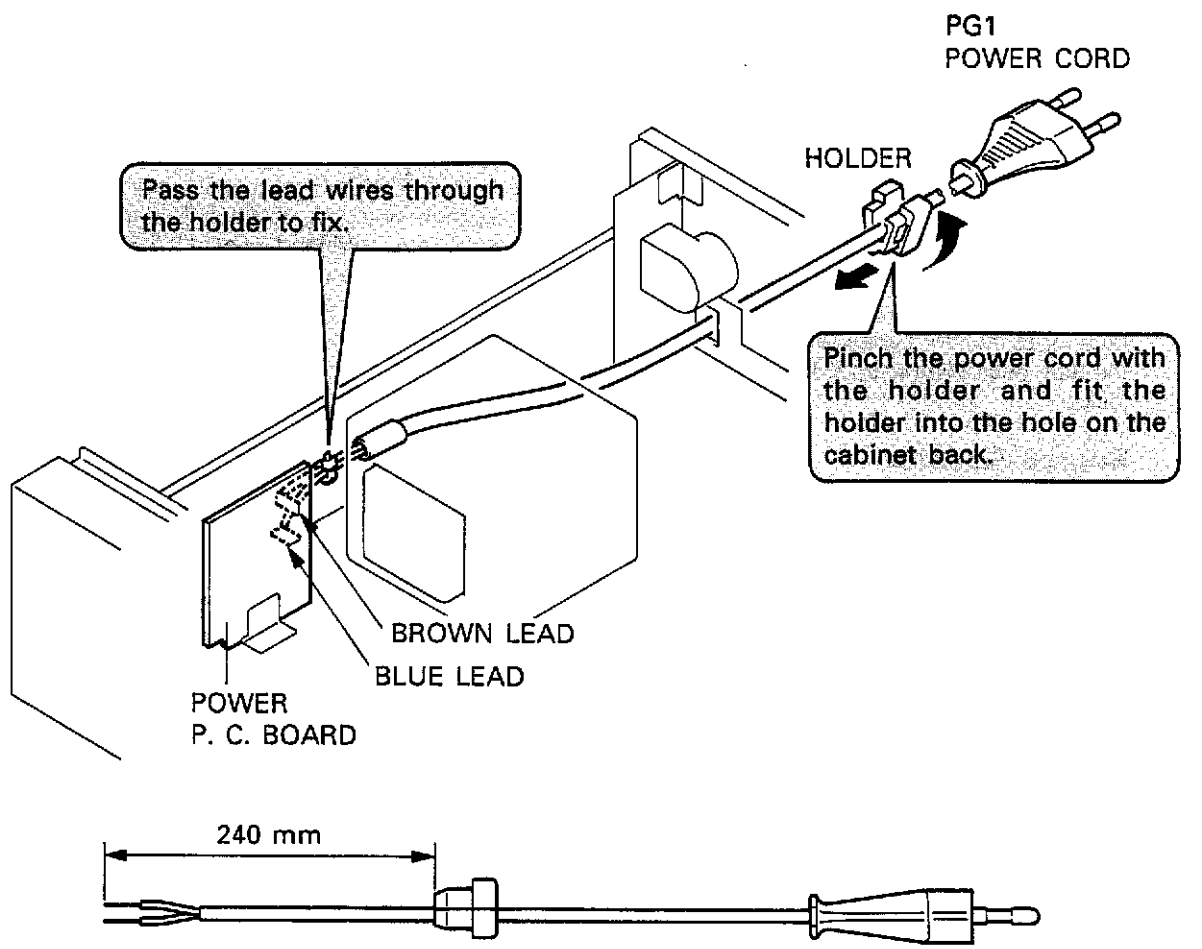
1. Remove the Front Panel Ass'y (AA), referring to the previous step 2.
2. Remove 3 screws (F) and then remove the Power P. C. Board (PCB-8).
   If necessary unsolder the lead wire.

6 VOLUME P. C. BOARD (PCB-7) REMOVAL

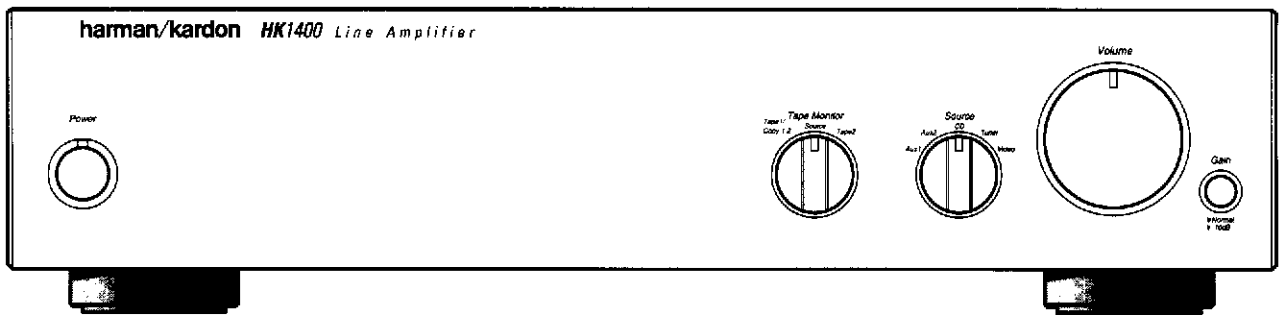
1. Remove the Front Panel Ass'y (AA), referring to the previous step 2.
2. Pull out the Rotary Knob (149).
3. Remove hexagon nut (G) and then remove the Volume P. C. Board (PCB-7).
   If necessary unsolder the lead wire.

POWER CORD REPLACEMENT (FOR SERVICE ENGINEERS OTHER THAN NORTH AMERICA)

In order to prevent fire or shock hazard when replacing the power cord, follow the procedure below to replace the parts with the standard supply parts.


PG1
POWER CORD
HOLDER
Pass the lead wires through the holder to fix.
Pinch the power cord with the holder and fit the holder into the hole on the cabinet back.
BROWN LEAD
BLUE LEAD
POWER
P. C. BOARD
240 mm

CONTROLS AND FUNCTIONS



(NOTE: HK1200 features are the same)

Power Switch
Pressing this switch will turn on the power and the POWER indicator lights up. Press the switch again to turn the power off.

Power Indicator
When the POWER switch is pressed, this indicator lights up in green.

Tape Monitor Selector
This selector is used when playing a tape deck, or monitoring during recording.
Tape 1/Copy 1→2: Select this position to play a tape or to monitor the recording on the tape deck connected to the TAPE 1 jacks. This is also the position to use to copy a tape from Tape 1 to Tape 2.
Source: Select this position to listen to a program source other than a tape.
Tape 2: Select this position to play a tape, or to monitor during recording on the tape deck connected to the TAPE 2 jacks.

Source Selector
This selector is used to select a program source other than a tape.
Aux 1: Select this position to listen to a source connected to the AUX 1 jacks.
Aux 2: Select this position to listen to a source connected to the AUX 2 jacks.
CD: Select this position to listen to a CD player connected to the CD jacks.
Tuner: Select this position to listen to a Tuner connected to the TUNER jacks.
Video: Select this position to listen to the sound of a TV, VCR or Laserdisc player connected to the VIDEO jacks.

Volume Control
This knob controls the sound level. Turning clockwise increases the sound volume, and turning counterclockwise decreases it. Set this control at a minimum level before turning the power on, changing the sound source or changing the GAIN switch to protect the speakers from being damaged by a sudden high level sound.

Gain Switch
The GAIN Switch changes both the input sensitivity (amount of amplification) and the input overload level of the preamplifier circuitry. The "Normal" position provides an input sensitivity that it typical of other high quality integrated amplifiers and preamplifiers. This mode has an input overload level of 2.5 Volts, which is high enough to use with nearly any high fidelity source. The "-10dB" position both decreases the input sensitivity and increases the input overload level by 10dB (approximately 3 times). This allows very strong input signals to be amplified without distortion. It also provides a wider dynamic range. Some listeners may prefer this position for listening to CD players, for example.

ALIGNMENT PROCEDURES (REFER TO PAGES 13,15,16 AND 19)

■ **Conditions** : • Set the Source selector to the "CD" position.
• Set the Volume control to minimum.
• Make the adjustment at a room temperature of 77°F (25°C)

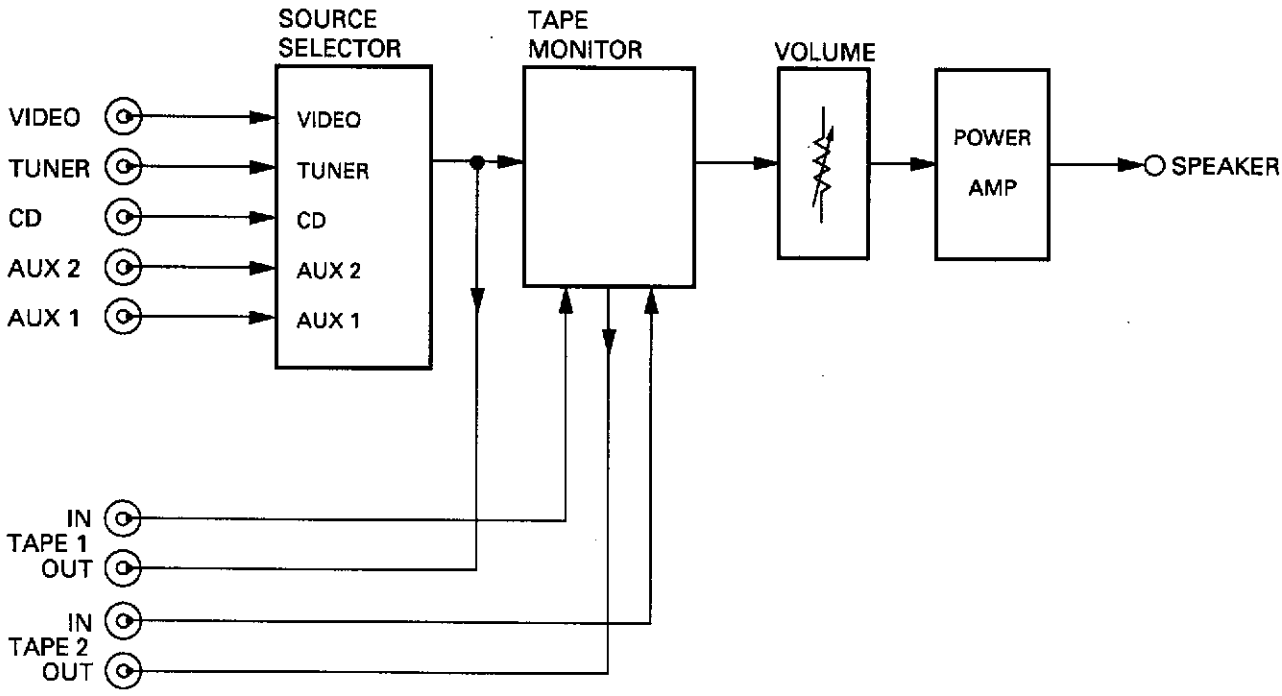
■ DC BALANCE ADJUSTMENT

Step	Connection Equipments	Adjustment	For
1	Connect the Digital Volt Meter to Speaker output.	VR403	0 mV
2	Connect the Digital Volt Meter to Speaker output.	VR404	0 mV

■ IDLING CURRENT ADJUSTMENT

Step	Connection Equipments	Adjustment	For
1	Connect the Digital Volt Meter to TP401 and TP402.	VR401	33 mV
2	Connect the Digital Volt Meter to TP403 and TP404.	VR402	33 mV

BLOCK DIAGRAM

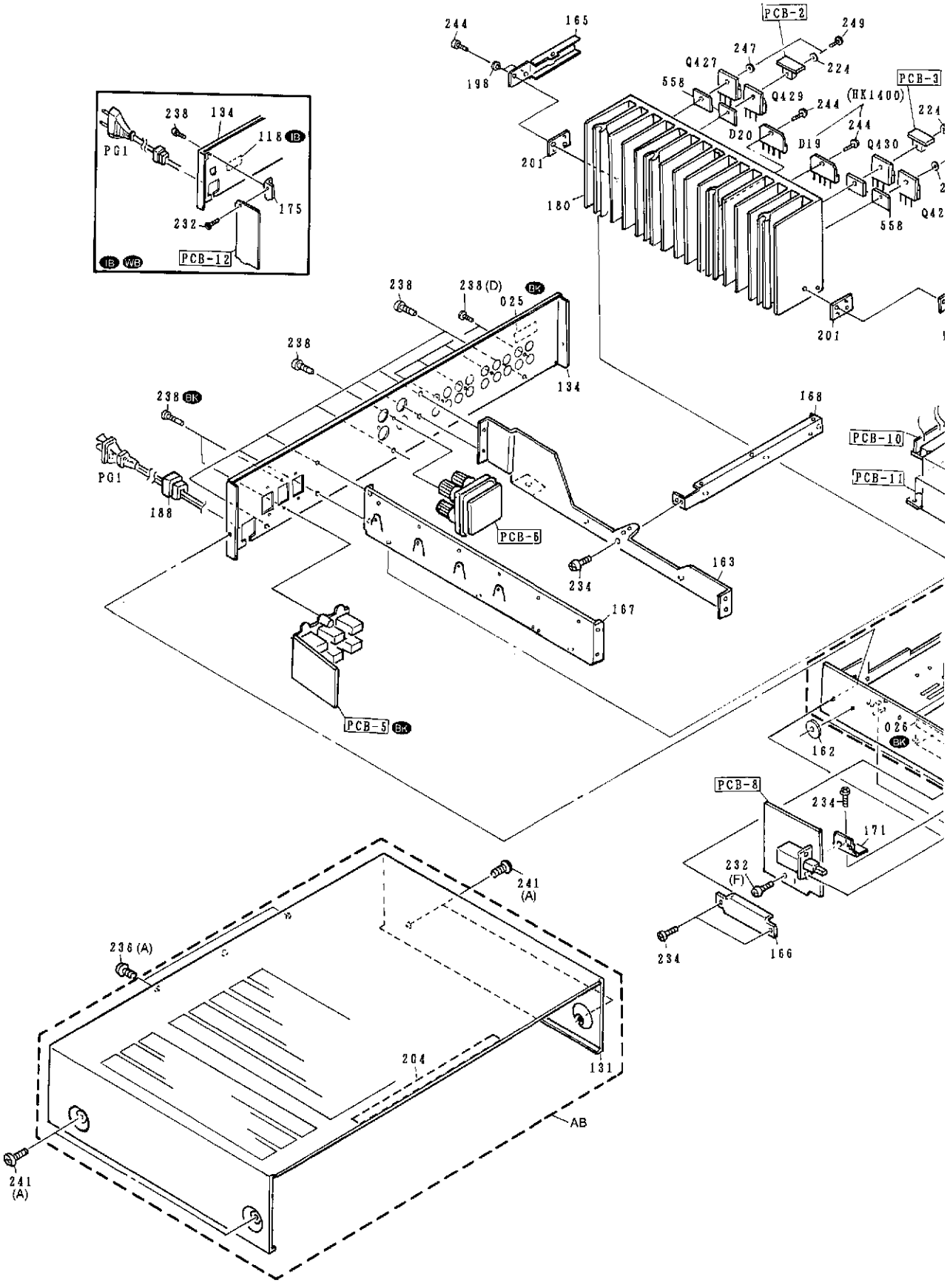


GENERAL UNIT PARTS LIST

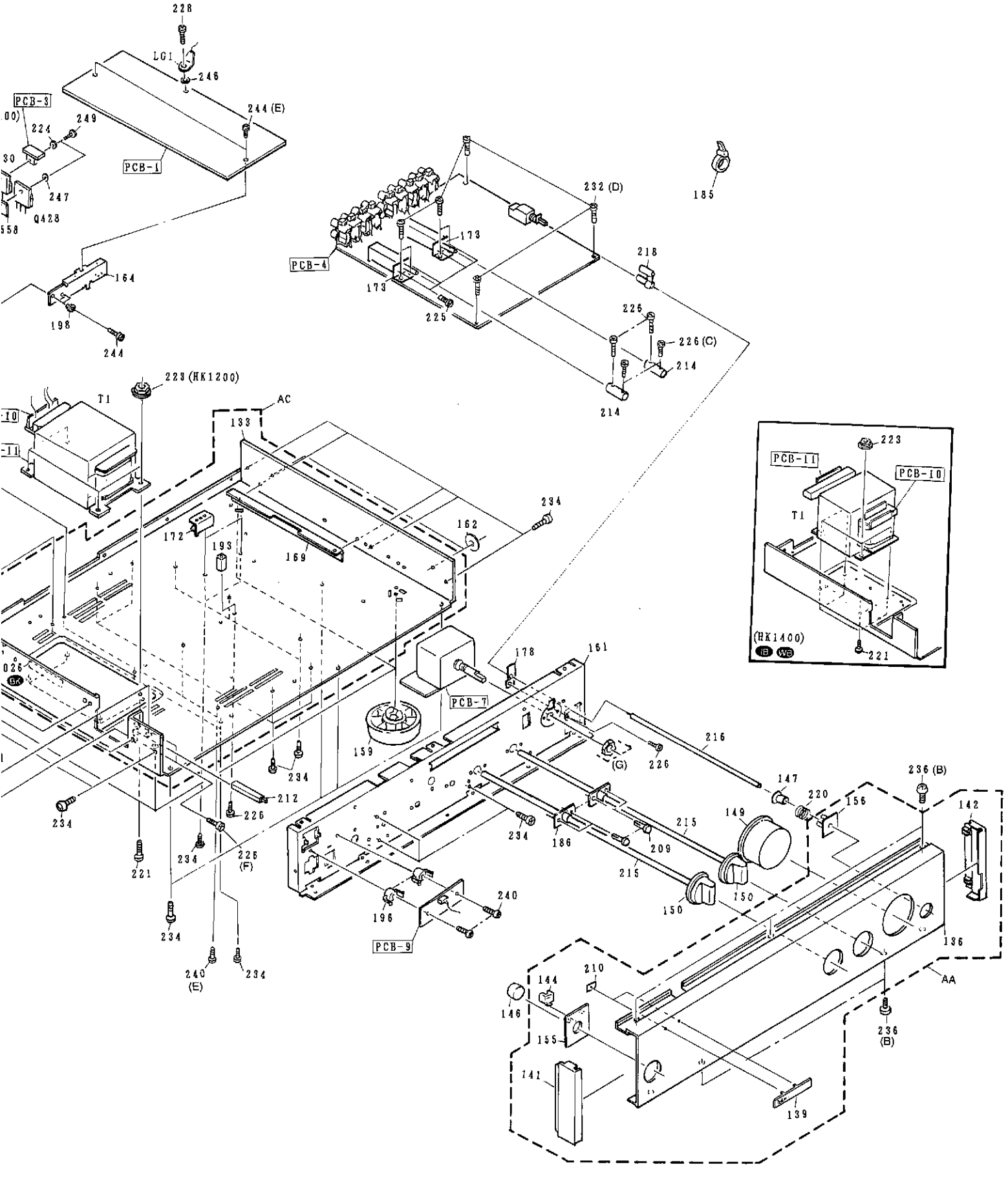
Ref. No.	Part No.	Description
AA	A443-PM1200A	FRONT PANEL ASSEMBLY (HK1200)
AA	A443-PM1400A	FRONT PANEL ASSEMBLY (HK1400)
AB	A414-PM1200A	CABINET TOP ASSEMBLY (HK1200)
AB	A414-PM1400A	CABINET TOP ASSEMBLY (HK1400)
AC	A424-PM1200B	CABINET BACK ASSEMBLY BK (HK1200)
AC	A424-PM1400B	CABINET BACK ASSEMBLY BK (HK1400)
AC	A424-PM1200A	CABINET BACK ASSEMBLY IB WB (HK1200)
AC	A424-PM1400A	CABINET BACK ASSEMBLY IB WB (HK1400)
025	1756-CSA	LABEL, CSA LABEL BK
026	1756-05910	LABEL, FUSE CAUTION BK
118	1756-21914	LABEL, DBP. LABEL IB
131	1414-17401	CABINET TOP
133	1424-37701	CABINET BACK, BOTTOM
134	1424-37604	CABINET BACK, REAR BK (HK1200)
134	1424-37601	CABINET BACK, REAR BK (HK1400)
134	1424-37605	CABINET BACK, REAR IB (HK1200)
134	1424-37602	CABINET BACK, REAR IB (HK1400)
134	1424-37606	CABINET BACK, REAR WB (HK1200)
134	1424-37603	CABINET BACK, REAR WB (HK1400)
136	1443-14904	FRONT PANEL
139	1714-02602	NAME PLATE, BADGE
141	1562-08202	FRAME, L
142	1562-08302	FRAME, R
144	1732-08801	INDICATOR, POWER LED
146	1662-66902	PUSH BUTTON, POWER
147	1662-67002	PUSH BUTTON, GAIN
149	1630-04902	ROTARY KNOB, MAIN
150	1632-21502	ROTARY KNOB, TAPE FUNCTION (X2)
155	1742-08302	ORNAMENT, POWER
156	1742-08402	ORNAMENT, GAIN
159	1319-05001	LEG, BOTTOM (X4)
161	2211-7328	CHASSIS, FRONT
162	2111-1389	FELT, TOP COVER (X4)
163	2219-8207	METAL FITTG, BOTTOM CENTER
164	2219-8384	METAL FITTG, MAIN HEAT
165	2219-8385	METAL FITTG, MAIN HEAT
166	2219-8386	METAL FITTG, BOTTOM SIDE
167	2219-8401	METAL FITTG, TRANS
168	2219-8407	METAL FITTG, H.CENTER
169	2219-8403	METAL FITTG, R.SIDE
171	2219-8019	METAL FITTG, POWER SWITCH PCB
172	2219-8348	METAL FITTG, TAPE FUNCTION SWITCH BOTTOM (X2)
173	2219-8405	METAL FITTG, TAPE FUNCTION SWITCH (X2)
175	2219-8390	METAL FITTG, POWER IN PCB IB WB
178	2219-8178	METAL FITTG, GAIN SHAFT
180	2222-7331	HEAT SINK, MAIN
185	2240-R0101	HOLDER, WIRING (X10)
186	2240-7409	HOLDER, TAPE FUNCTION SHAFT (X2)
188	2240-364	HOLDER, AC CORD
193	2362-901014	BOSS,THREAD, GND
196	2360-7026	SPECIAL BOSS, LED PCB (X2)
198	2132-7136	SPACER, HEAT METAL (X4)
201	2224-7120	INSULATOR, HEAT METAL (X2)
204	2224-7137	INSULATOR, CABINET
209	2459-3003511	RIVET,PLASTIC, SHAFT (X4)
210	2431-0151	FASTENER, BADGE (X2)
212	2672-7018	LEVER, POWER SHAFT
214	2601-7069	SHAFT, TAPE FUNCTION SHAFT (X2)
215	2601-7208	SHAFT, TAPE FUNCTION (X2)
216	2601-7210	SHAFT, GAIN
218	2601-7084	SHAFT, GAIN SHAFT
220	2651-2101728	SPRING, GAIN
221	2327-R0140102	SCREW,BND+ (4X10 mm) (X4) (HK1200)
221	2347-400827	SCREW,BND T+ (4X8 mm) (X4) BK (HK1400)
221	2327-R0140102	SCREW,BND+ (4X10 mm) (X4) IB WB (HK1400)
223	2440-60	SPECIAL NUT, (X4) (HK1200)
223	2440-60	SPECIAL NUT, (X4) IB WB (HK1400)
224	2401-0373	WASHER,METAL, BIAS PCB (X2)
225	2327-R0130062	SCREW,BND+ (3X6 mm) (X4)
226	2327-R0130062	SCREW,BND+ (3X6 mm) (X8)
228	2327-R0130082	SCREW,BND+ (3X8 mm)
232	2347-R0130062	SCREW,BND T+ (3X6 mm) (X8) BK
232	2347-R0130062	SCREW,BND T+ (3X6 mm) (X9) IB WB
234	2347-R0130062	SCREW,BND T+ (3X6 mm) (X30)
236	2347-R0130064	SCREW,BND T+ (3X6 mm) (X7)
238	2347-R0130084	SCREW,BND T+ (3X8 mm) (X14) BK
238	2347-R0130084	SCREW,BND T+ (3X8 mm) (X13) IB WB
240	2347-R0130102	SCREW,BND T+ (3X10 mm) (X5)
241	2347-R0140064	SCREW,BND T+ (4X6 mm) (X4)
244	2347-R0130082	SCREW,BND T+ (3X8 mm) (X7) (HK1200)
244	2347-R0130082	SCREW,BND T+ (3X8 mm) (X8) (HK1400)
246	2402-0374	WASHER,PLASTIC, PCB GND
247	2401-035	WASHER,METAL, POWER TRANSISTOR (X2)
249	2557-301429	SCREW,B SPW+, Q427-Q430 (X4)
558	2224-7134	INSULATOR, Q427-Q430 (X4)

GENERAL UNIT

EXPLODED VIEW

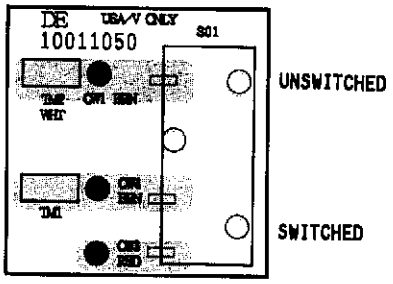


E	F	G	H	I	J

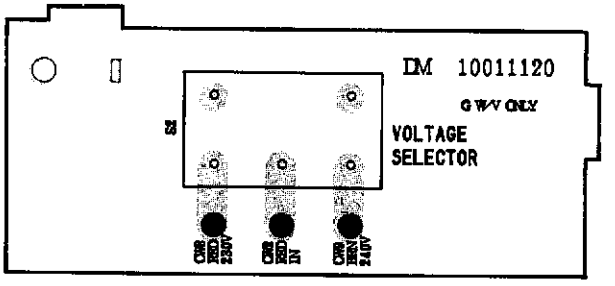

228
LG1
246
244 (E)
PCB-3
249
224
PCB-1
247
Q428
164
198
244
232 (D)
185
173
PCB-4
173
225
218
225
226 (C)
214
214
223 (HK1200)
T1
AC
133
234
162
172
193
169
178
161
PCB-7
159
(G)
226
216
147
220
156
236 (B)
142
149
215
234
186
209
215
150
150
234
212
226
234
221
225
(F)
234
240
196
PCB-9
240
(E)
234
136
AA
210
144
146
155
141
139
236
(B)
223
PCB-11
PCB-10
T1
(HK1400)
221

P. C. BOARDS (1)

PCB-5 (BK)
AC OUTLET P.C. BOARD

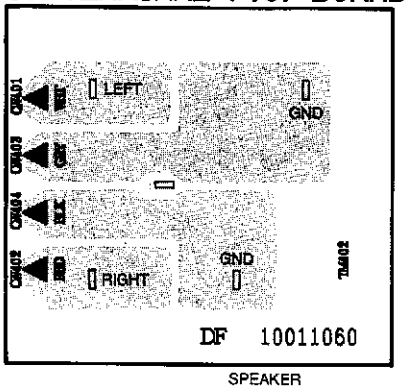


PCB-12 (IB) (WB)
VOLT SELECT P.C. BOARD



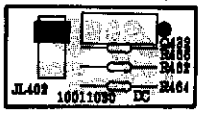
PCB-2
BIAS (L)
P.C. BOARD

PCB-6
SP TERMINAL P.C. BOARD



SPEAKER

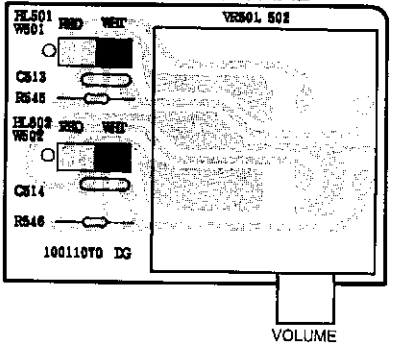
PCB-3
BIAS (R)
P.C. BOARD



(HK1200)

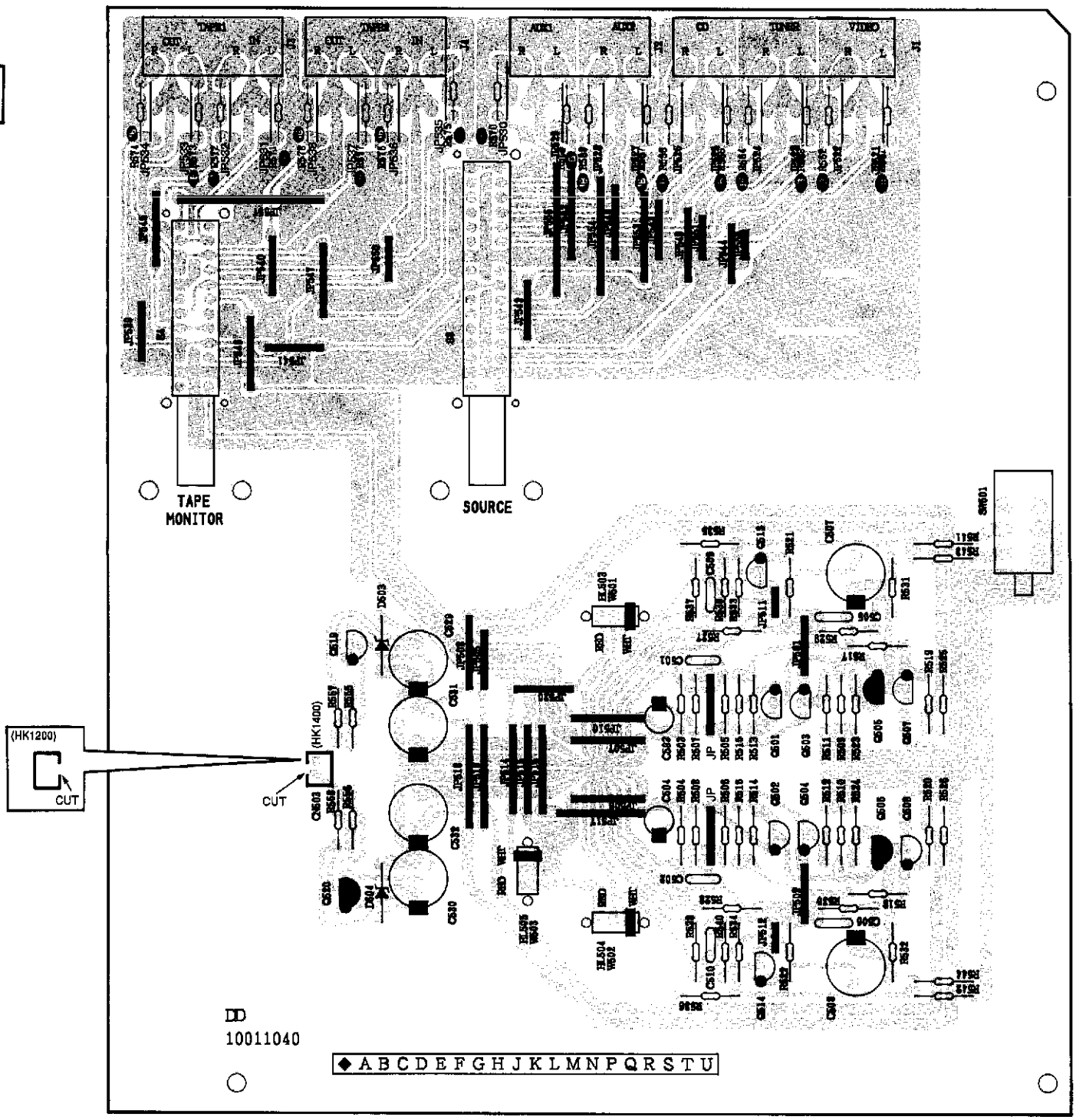
CUT

PCB-7
VOLUME P.C. BOARD



VOLUME

PCB-4 PRE AMP P.C. BOARD



ELECTRICAL PARTS LIST

Ser. No.	Ref. No.	Part No.	Description
		PCB-2 BIAS (L) P.C. BOARD	
		RESISTORS	
592	R461	5130-R030J221	RES,CBN 1/2P 220
593	R463	5130-R030J182	RES,CBN 1/2P 1.8K
594	R465	5130-R030J122	RES,CBN 1/2P 1.2K
		TRANSISTOR	
591	Q431	5613-3423(Y)	XISTOR,NPN R
		MISCELLANEOUS	
703	JL401	4132-R0202101	CORD,2C
		PCB-3 BIAS (R) P.C. BOARD	
		RESISTORS	
598	R462	5130-R030J221	RES,CBN 1/2P 220
599	R464	5130-R030J182	RES,CBN 1/2P 1.8K
600	R466	5130-R030J122	RES,CBN 1/2P 1.2K
		TRANSISTOR	
597	Q432	5613-3423(Y)	XISTOR,NPN R
		MISCELLANEOUS	
704	JL402	4132-R0202101	CORD,2C
		PCB-4 PRE AMP P.C. BOARD	
		CAPACITORS	
471	C501	5359-6805851	CAP,PPP 68P
471	C502	5359-6805851	CAP,PPP 68P
474	C503	5345-S19BM107	CAP,MINI ELE 100μ/10V
474	C504	5345-S19BM107	CAP,MINI ELE 100μ/10V
472	C505	5353-030934	CAP,MCA 3P
472	C506	5353-030934	CAP,MCA 3P
475	C507	5345-S19DM227	CAP,MINI ELE 220μ/25V
475	C508	5345-S19DM227	CAP,MINI ELE 220μ/25V
509	C509	5354-104593	CAP,MYL .1μ
509	C510	5354-104593	CAP,MYL .1μ
519	C529	5345-227D041	CAP,MINI ELE 220μ/25V
519	C530	5345-227D041	CAP,MINI ELE 220μ/25V
519	C531	5345-227D041	CAP,MINI ELE 220μ/25V
519	C532	5345-227D041	CAP,MINI ELE 220μ/25V
		RESISTORS	
485	R503	5130-R030J224	RES,CBN 1/2P 220K
485	R504	5130-R030J224	RES,CBN 1/2P 220K
486	R505	5130-R030J473	RES,CBN 1/2P 47K
486	R506	5130-R030J473	RES,CBN 1/2P 47K
487	R507	5130-R030J331	RES,CBN 1/2P 330
487	R508	5130-R030J331	RES,CBN 1/2P 330
488	R509	5130-R030J272	RES,CBN 1/2P 2.7K
488	R510	5130-R030J272	RES,CBN 1/2P 2.7K
488	R511	5130-R030J272	RES,CBN 1/2P 2.7K
488	R512	5130-R030J272	RES,CBN 1/2P 2.7K
489	R513	5130-R030J221	RES,CBN 1/2P 220
489	R514	5130-R030J221	RES,CBN 1/2P 220
489	R515	5130-R030J221	RES,CBN 1/2P 220
489	R516	5130-R030J221	RES,CBN 1/2P 220
490	R517	5130-R030J562	RES,CBN 1/2P 5.6K
490	R518	5130-R030J562	RES,CBN 1/2P 5.6K
491	R519	5130-R030J122	RES,CBN 1/2P 1.2K
491	R520	5130-R030J122	RES,CBN 1/2P 1.2K
492	R521	5130-R030J392	RES,CBN 1/2P 3.9K
492	R522	5130-R030J392	RES,CBN 1/2P 3.9K
489	R523	5130-R030J221	RES,CBN 1/2P 220
489	R524	5130-R030J221	RES,CBN 1/2P 220
489	R525	5130-R030J221	RES,CBN 1/2P 220
489	R526	5130-R030J221	RES,CBN 1/2P 220
494	R527	5130-R030J393	RES,CBN 1/2P 39K
494	R528	5130-R030J393	RES,CBN 1/2P 39K
495	R529	5130-R030J123	RES,CBN 1/2P 12K
495	R530	5130-R030J123	RES,CBN 1/2P 12K
487	R531	5130-R030J331	RES,CBN 1/2P 330
487	R532	5130-R030J331	RES,CBN 1/2P 330
513	R533	5130-R030J335	RES,CBN 1/2P 3.3M
513	R534	5130-R030J335	RES,CBN 1/2P 3.3M
512	R535	5130-R030J104	RES,CBN 1/2P 100K
512	R536	5130-R030J104	RES,CBN 1/2P 100K
496	R537	5130-R030J104	RES,CBN 1/2P 100K
496	R538	5130-R030J104	RES,CBN 1/2P 100K
513	R539	5130-R030J335	RES,CBN 1/2P 3.3M
513	R540	5130-R030J335	RES,CBN 1/2P 3.3M
514	R541	5130-R030J393	RES,CBN 1/2P 39K (HK1200)
514	R541	5130-R030J473	RES,CBN 1/2P 47K (HK1400)
514	R542	5130-R030J393	RES,CBN 1/2P 39K (HK1200)
514	R542	5130-R030J473	RES,CBN 1/2P 47K (HK1400)
515	R543	5130-R030J684	RES,CBN 1/2P 680K (HK1200)
515	R543	5130-R030J564	RES,CBN 1/2P 560K (HK1400)
515	R544	5130-R030J684	RES,CBN 1/2P 680K (HK1200)
515	R544	5130-R030J564	RES,CBN 1/2P 560K (HK1400)
521	⚠ R555	5102-2205116	RES,FUSE 22
521	⚠ R556	5102-2205116	RES,FUSE 22
522	R557	5130-R030J152	RES,CBN 1/2P 1.5K
522	R558	5130-R030J152	RES,CBN 1/2P 1.5K
497	R561	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R562	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R563	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R564	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R565	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R566	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R567	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R568	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R569	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R570	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R571	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R572	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R573	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R574	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R575	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R576	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R577	5130-R030J331	RES,CBN 1/2P 330 (B)
497	R578	5130-R030J331	RES,CBN 1/2P 330 (B)
		TRANSISTORS	
478	Q501	5613-1775(F)	XISTOR,NPN R
478	Q502	5613-1775(F)	XISTOR,NPN R
478	Q503	5613-1775(F)	XISTOR,NPN R
478	Q504	5613-1775(F)	XISTOR,NPN R
479	Q505	5612-646A(C)	XISTOR,PNP A
479	Q506	5612-646A(C)	XISTOR,PNP A
480	Q507	5614-666A(C)	XISTOR,NPN A
480	Q508	5614-666A(C)	XISTOR,NPN A
506	Q513	5616-2SK364BL	FET,N-CH
506	Q514	5616-2SK364BL	FET,N-CH
516	Q519	5614-667A(C)	XISTOR,NPN A
517	Q520	5612-647A(C)	XISTOR,PNP A
		DIODES	
518	D503	5635-HZ20-2L	DIODE,ZENER
518	D504	5635-HZ20-2L	DIODE,ZENER
		MISCELLANEOUS	
690	CN503	4443-0201140	CONNECTOR
670	J1	4486-18	6P PIN JACK
671	J2	4484-50	4P PIN JACK
671	J3	4484-50	4P PIN JACK
671	J4	4484-50	4P PIN JACK
664	S3	4412-00103045	SWITCH,RO-SL, SOURCE
663	S4	4412-00104043	SWITCH,RO-SL, TAPE MONITOR
660	SW501	4431-S2901102	PUSH SWITCH, GAIN
683		2240-Z031	HOLDER, HL503-HL505 (X3)
		PCB-5 AC OUTLET P.C. BOARD	
		MISCELLANEOUS	
043A	⚠ CW1	4163-S5101220	CONNECTOR W/W (BK)
044A	⚠ CW3	4163-S5201300	CONNECTOR W/W (BK)
045A	⚠ CW4	4163-S5101350	CONNECTOR W/W (BK)
042A	⚠ SO1	4474-04302	SOCKET, AC OUTLET (BK)
041A	⚠ TM1	4214-245	TERMINAL (BK)
041A	⚠ TM2	4214-245	TERMINAL (BK)

Ser. No.		Ref. No.	Part No.	Description
PCB-6 SP TERMINAL P.C. BOARD				
			MISCELLANEOUS	
672A	⚠	TM402	4214-241	TERMINAL, SPEAKER (BK) (WB)
672	⚠	TM402	4214-242	TERMINAL, SPEAKER (IB)
PCB-7 VOLUME P.C. BOARD				
			CAPACITORS	
499		C513	5359-1015851	CAP,PPP 100P
499		C514	5359-1015851	CAP,PPP 100P
			RESISTORS	
500		R545	5130-R030J102	RES,CBN 1/2P 1K
500		R546	5130-R030J102	RES,CBN 1/2P 1K
			CONTROLS	
661		VR501/ 502	5118-303731	RES,V CBN 40 30K
			MISCELLANEOUS	
682			2240-Z031	HOLDER, HL501, HL502 (X2)
PCB-8 POWER P.C. BOARD				
			CAPACITORS	
653A	⚠	C1	5352-S010M103	CAP,MTL .01µ (BK)
653	⚠	C1	5352-1030958	CAP,MTL .01µ (IB) (WB)
			RESISTOR	
654	⚠	R1	5130-R030J335	RES,CBN 1/2P 3.3M (IB) (WB)
			MISCELLANEOUS	
691	⚠	CW2	4163-S5201300	CONNECTOR W/W
692	⚠	CW4	4163-S5101300	CONNECTOR W/W (IB) (WB) (HK1200)
692	⚠	CW4	4163-S5101160	CONNECTOR W/W (IB) (WB) (HK1400)
657A	⚠	F1	5732-01501252	FUSE, 2.5A 125/250V (BK) (HK1200)
657	⚠	F1	5732-01601122	FUSE, T1.25A/T1.25AL 250V (IB) (WB) (HK1200)
657A	⚠	F1	5732-402031	FUSE, 4A 125/250V (BK) (HK1400)
657	⚠	F1	5732-01601202	FUSE, T2A/T2AL (IB) (WB) (HK1400)
656	⚠	HF1	4472-04901	FUSE HOLDER, F1
656	⚠	HF2	4472-04901	FUSE HOLDER, F1
665	⚠	S1	4433-00401	SWITCH,PU-PW, POWER
686	⚠	TM3	4214-245	TERMINAL (IB) (WB)
686	⚠	TM4	4214-245	TERMINAL (IB) (WB)
PCB-9 LED P.C. BOARD				
			CAPACITOR	
667		C26	5345-106C041	CAP,MINI ELE 10µ/16V
			RESISTOR	
668		R53	5130-R030J122	RES,CBN 1/2P 1.2K
			DIODE	
666		D24	5637-SLR33MC3	LED
			MISCELLANEOUS	
689			2240-Z021	HOLDER, HL403
PCB-11 TRANS 2 P.C. BOARD				
			CAPACITORS	
652		C2	5354-104593	CAP,MYL .1µ
652		C3	5354-104593	CAP,MYL .1µ
PCB-12 VOLT SELECT P.C. BOARD				
			MISCELLANEOUS	
700	⚠	CW8	4163-S5201200	CONNECTOR W/W (IB) (WB) (HK1200)
700	⚠	CW8	4163-S5201300	CONNECTOR W/W (IB) (WB) (HK1400)
701	⚠	CW9	4163-S5101200	CONNECTOR W/W (IB) (WB) (HK1200)
701	⚠	CW9	4163-S5101300	CONNECTOR W/W (IB) (WB) (HK1400)
676	⚠	S2	4411-00501102	ROTRY SWITCH, VOLT SELECT (IB) (WB)
CHASSIS MISCELLANEOUS				
			MISCELLANEOUS	
688		LG1	4211-4	LUG
674A	⚠	PG1	4161-71151	CORD W/PLUG, AC CORD (BK)
674	⚠	PG1	4161-7256	CORD W/PLUG, AC CORD (IB) (WB)
659A	⚠	T1	5584-T3301	XFORMER,POWER (BK) (HK1200)
659A	⚠	T1	5584-T3401	XFORMER,POWER (BK) (HK1400)
659	⚠	T1	5584-T3302	XFORMER,POWER (IB) (WB) (HK1200)
659	⚠	T1	5584-T3501	XFORMER,POWER (IB) (WB) (HK1400)
055		PCB-10	4551-10010100	P.C. BOARD, TRANS 1 P.C. BOARD (HK1200)
056		PCB-10	4551-10011100	P.C. BOARD, TRANS 1 P.C. BOARD (HK1400)
PACKING PARTS LIST				
		021A	1113-02501	OWNER CARD, REPLY CARD (BK)
		022A	1116-03801	GUARANTY CARD, WARRANTY (BK)
		023A	1119-04501	ATTACH SHEET, SERVICE GUIDE (BK)
		024A	1119-01201	ATTACH SHEET, UL (BK)
		109A	1111-1160J152	OWNER'S GUIDE, IB (BK) (WB)
		109	1111-1150J152	OWNER'S GUIDE, IB (IB)
		113	1241-R0123351	POLYETHY BAG, OWNER GUIDE
		116	1756-03108	LABEL, (I) LABEL, CORTON BOX (X2) (IB)
		116B	1756-03101	LABEL, (W) LABEL, CORTON BOX (X2) (WB)
		122	1241-R0160601	POLYETHY BAG, SET
		125	1221-28141	CARTON BOX
		126	1222-7390	CUSHION, R
		127	1222-7391	CUSHION, L
		128	1223-R0420055	SOFT SHEET

ABBREVIATIONS IN PARTS LIST

CAPACITORS

CAP, MINI ELE	:	Electrolytic
CAP, CER	:	Ceramic
CAP, PPP	:	Polypropylene
CAP, MYL	:	Mylar
CAP, MCA	:	Mica
470µ	:	470µF
6800P	:	6800pF
.047µ	:	0.047µF

RESISTORS

RES, CBN	1/6P	:	Carbon 1/6W
	2.2K	:	2.2kΩ
	220	:	220Ω
RES, FUSE		:	Fuse
RES, CEM	5P	:	Cement 5W
RES, MTL	1P	:	Metal 1W

TRANSISTORS

XISTOR	:	Transistor
FET	:	Field Effect Transistor

CONTROLS

RES, V CBN	:	Variable Carbon Resistor
RES, SEMI FIX	:	Semi - fixed Resistors

NOTE:

⚠ SAFETY RELATED COMPONENT. USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.

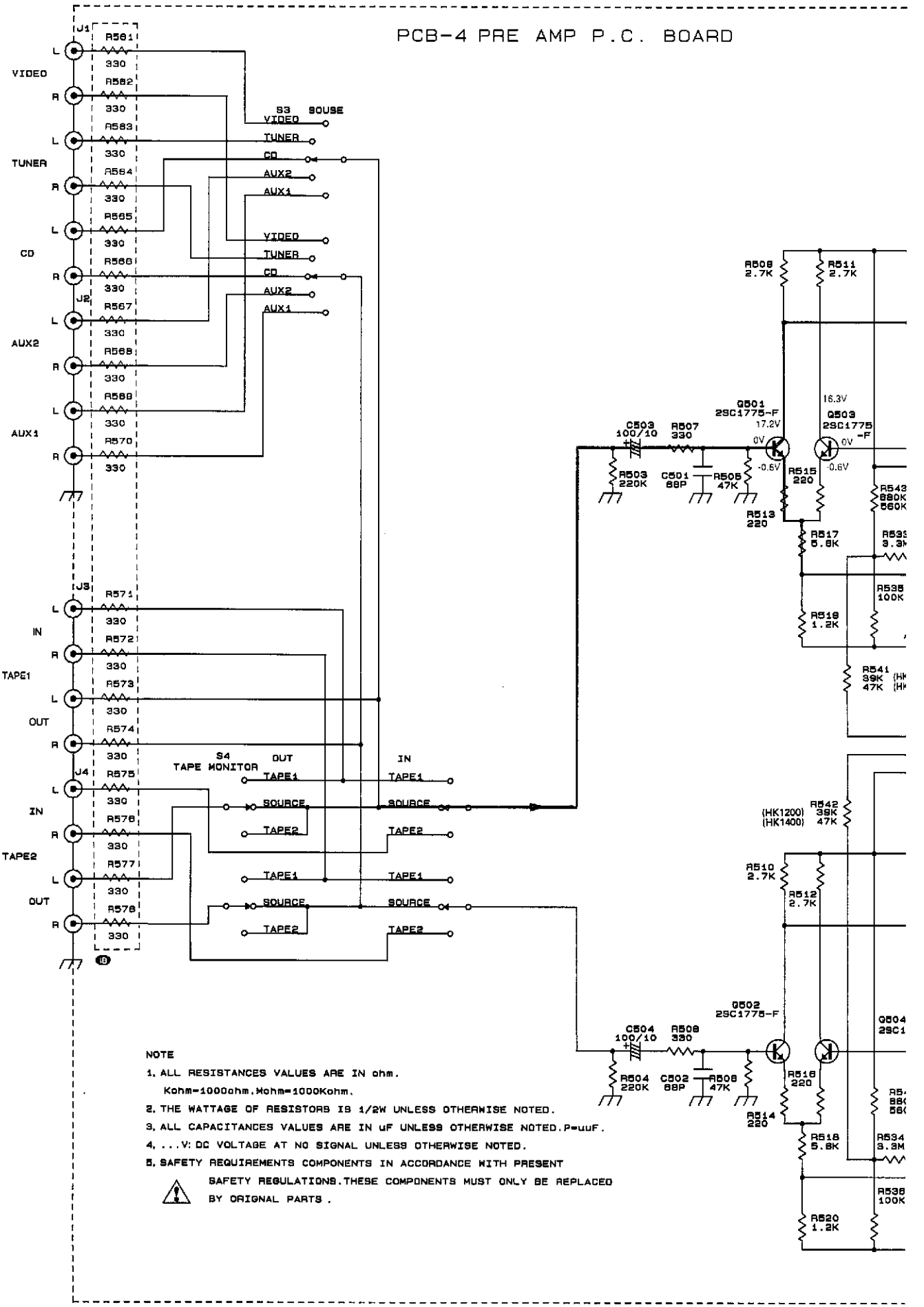
ELECTRICAL PARTS LIST (MODEL : HK1200)

Ser. No.		Ref. No.	Part No.	Description
			PCB-1 MAIN P.C. BOARD (HK1200)	
			CAPACITORS	
658	⚠	C20	5341-S28FM109	CAP,ELE 10000μ/43V
658	⚠	C21	5341-S28FM109	CAP,ELE 10000μ/43V
621		C22	5345-106F041	CAP,MINI ELE 10μ/50V
623		C23	5345-105F041	CAP,MINI ELE 1μ/50V
623		C24	5345-105F041	CAP,MINI ELE 1μ/50V
624		C25	5345-107B041	CAP,MINI ELE 100μ/10V
625		C27	5354-683593	CAP,MYL .068μ
625		C28	5354-683593	CAP,MYL .068μ
626		C29	5345-S25JM105	CAP,MINI ELE 1μ/100V
537		C401	5345-107B041	CAP,MINI ELE 100μ/10V
537		C402	5345-107B041	CAP,MINI ELE 100μ/10V
532A		C405	5353-030934	CAP,MCA 3P BK WB
532		C405	5353-040934	CAP,MCA 4P IB
532A		C406	5353-030934	CAP,MCA 3P BK WB
532		C406	5353-040934	CAP,MCA 4P IB
536		C407	5345-105F041	CAP,MINI ELE 1μ/50V
536		C408	5345-105F041	CAP,MINI ELE 1μ/50V
538	⚠	C409	5345-337F041	CAP,MINI ELE 330μ/50V
538	⚠	C410	5345-337F041	CAP,MINI ELE 330μ/50V
538	⚠	C411	5345-337F041	CAP,MINI ELE 330μ/50V
538	⚠	C412	5345-337F041	CAP,MINI ELE 330μ/50V
535		C413	5345-106C041	CAP,MINI ELE 10μ/16V
535		C414	5345-106C041	CAP,MINI ELE 10μ/16V
539		C417	5345-106F041	CAP,MINI ELE 10μ/50V
539		C418	5345-106F041	CAP,MINI ELE 10μ/50V
531		C419	5354-104593	CAP,MYL .1μ
531		C420	5354-104593	CAP,MYL .1μ
531		C421	5354-104593	CAP,MYL .1μ
531		C422	5354-104593	CAP,MYL .1μ
534		C423	5359-1025851	CAP,PPP 1000P
534		C424	5359-1025851	CAP,PPP 1000P
533A		C425	5359-4705851	CAP,PPP 47P BK WB
533		C425	5359-6805851	CAP,PPP 68P IB
533A		C426	5359-4705851	CAP,PPP 47P BK WB
533		C426	5359-6805851	CAP,PPP 68P IB
			RESISTORS	
634		R27	5130-R010J333	RES,CBN 1/6P 33K
634		R28	5130-R010J333	RES,CBN 1/6P 33K
628	⚠	R29	5102-6815116	RES,FUSE 680
628	⚠	R30	5102-6815116	RES,FUSE 680
629		R31	5130-R010J103	RES,CBN 1/6P 10K
630		R32	5130-R010J822	RES,CBN 1/6P 8.2K
631		R33	5130-R010J104	RES,CBN 1/6P 100K
632		R34	5130-R010J472	RES,CBN 1/6P 4.7K
632		R36	5130-R010J472	RES,CBN 1/6P 4.7K
632		R37	5130-R010J472	RES,CBN 1/6P 4.7K
627		R38	5130-R010J683	RES,CBN 1/6P 68K
634		R39	5130-R010J333	RES,CBN 1/6P 33K
636		R41	5130-R010J222	RES,CBN 1/6P 2.2K
627		R43	5130-R010J683	RES,CBN 1/6P 68K
631		R44	5130-R010J104	RES,CBN 1/6P 100K
637		R45	5130-R010J682	RES,CBN 1/6P 6.8K
637		R46	5130-R010J682	RES,CBN 1/6P 6.8K
638		R47	5130-R010J152	RES,CBN 1/6P 1.5K
638		R48	5130-R010J152	RES,CBN 1/6P 1.5K
639		R49	5130-R010J681	RES,CBN 1/6P 680
639		R50	5130-R010J681	RES,CBN 1/6P 680
638		R51	5130-R010J152	RES,CBN 1/6P 1.5K
638		R52	5130-R010J152	RES,CBN 1/6P 1.5K
641		R54	5130-R010J335	RES,CBN 1/6P 3.3M
640		R59	5130-R010J123	RES,CBN 1/6P 12K
640		R60	5130-R010J123	RES,CBN 1/6P 12K
561		R401	5130-R030J333	RES,CBN 1/2P 33K
561		R402	5130-R030J333	RES,CBN 1/2P 33K
562		R403	5130-R030J331	RES,CBN 1/2P 330
562		R404	5130-R030J331	RES,CBN 1/2P 330
563		R405	5130-R030J151	RES,CBN 1/2P 150
563		R406	5130-R030J151	RES,CBN 1/2P 150
563		R407	5130-R030J151	RES,CBN 1/2P 150
563		R408	5130-R030J151	RES,CBN 1/2P 150
561		R409	5130-R030J333	RES,CBN 1/2P 33K
561		R410	5130-R030J333	RES,CBN 1/2P 33K

Ser. No.		Ref. No.	Part No.	Description
565		R411	5130-R030J272	RES,CBN 1/2P 2.7K
565		R412	5130-R030J272	RES,CBN 1/2P 2.7K
565		R413	5130-R030J272	RES,CBN 1/2P 2.7K
565		R414	5130-R030J272	RES,CBN 1/2P 2.7K
576		R415	5130-R030J222	RES,CBN 1/2P 2.2K
576		R416	5130-R030J222	RES,CBN 1/2P 2.2K
583	⚠	R417	5102-6815116	RES,FUSE 680
583	⚠	R418	5102-6815116	RES,FUSE 680
567		R419	5130-R030J331	RES,CBN 1/2P 330
567		R420	5130-R030J331	RES,CBN 1/2P 330
568		R421	5130-R030J821	RES,CBN 1/2P 820
568		R422	5130-R030J821	RES,CBN 1/2P 820
569		R423	5130-R030J101	RES,CBN 1/2P 100
569		R424	5130-R030J101	RES,CBN 1/2P 100
572A		R425	5130-R030J331	RES,CBN 1/2P 330 BK WB
572		R425	5130-R030J102	RES,CBN 1/2P 1K IB
572A		R426	5130-R030J331	RES,CBN 1/2P 330 BK WB
572		R426	5130-R030J102	RES,CBN 1/2P 1K IB
573		R427	5130-R030J473	RES,CBN 1/2P 47K
573		R428	5130-R030J473	RES,CBN 1/2P 47K
584	⚠	R429	5102-1015116	RES,FUSE 100
584	⚠	R430	5102-1015116	RES,FUSE 100
584	⚠	R431	5102-1015116	RES,FUSE 100
584	⚠	R432	5102-1015116	RES,FUSE 100
570		R433	5130-R030J183	RES,CBN 1/2P 18K
570		R434	5130-R030J183	RES,CBN 1/2P 18K
570		R435	5130-R030J183	RES,CBN 1/2P 18K
570		R436	5130-R030J183	RES,CBN 1/2P 18K
574		R437	5130-R030J562	RES,CBN 1/2P 5.6K
574		R438	5130-R030J562	RES,CBN 1/2P 5.6K
571		R439	5130-R030J391	RES,CBN 1/2P 390
571		R440	5130-R030J391	RES,CBN 1/2P 390
585	⚠	R441	5102-1005116	RES,FUSE 10
585	⚠	R442	5102-1005116	RES,FUSE 10
585	⚠	R443	5102-1005116	RES,FUSE 10
585	⚠	R444	5102-1005116	RES,FUSE 10
589	⚠	R449	5102-8205116	RES,FUSE 82
589	⚠	R450	5102-8205116	RES,FUSE 82
579		R451/453	5273-R22672	RES,CEM 3P .22
579		R452/454	5273-R22672	RES,CEM 3P .22
580		R455	5171-100581	RES,MTL 1P 10
580		R456	5171-100581	RES,MTL 1P 10
581		R457	5173-100583	RES,MTL 2P 10
581		R458	5173-100583	RES,MTL 2P 10
582		R459	5174-363381	RES,MTL 1/4P 36K
582		R460	5174-363381	RES,MTL 1/4P 36K
586	⚠	R471	5102-1015116	RES,FUSE 100
586	⚠	R472	5102-1015116	RES,FUSE 100
586	⚠	R473	5102-1015116	RES,FUSE 100
586	⚠	R474	5102-1015116	RES,FUSE 100
588	⚠	R475	5102-1505116	RES,FUSE 15
588	⚠	R476	5102-1505116	RES,FUSE 15
588	⚠	R477	5102-1505116	RES,FUSE 15
588	⚠	R478	5102-1505116	RES,FUSE 15
587	⚠	R479	5102-2R25116	RES,FUSE 2.2
587	⚠	R480	5102-2R25116	RES,FUSE 2.2
587	⚠	R481	5102-2R25116	RES,FUSE 2.2
587	⚠	R482	5102-2R25116	RES,FUSE 2.2
			TRANSISTORS	
645		Q11	5613-2240(BL)	XISTOR,NPN R
645		Q12	5613-2240(BL)	XISTOR,NPN R
646		Q13	5611-1309A(R)	XISTOR,PNP R
647		Q14	5613-3311A(R)	XISTOR,NPN R
648		Q15	5613-2320L(F)	XISTOR,NPN R
646		Q16	5611-1309A(R)	XISTOR,PNP R
649		Q19	5611-970(BL)	XISTOR,PNP R
649		Q20	5611-970(BL)	XISTOR,PNP R
645		Q21	5613-2240(BL)	XISTOR,NPN R
547		Q401	5613-1775(F)	XISTOR,NPN R
547		Q402	5613-1775(F)	XISTOR,NPN R
547		Q403	5613-1775(F)	XISTOR,NPN R
547		Q404	5613-1775(F)	XISTOR,NPN R
549		Q405	5612-646A(C)	XISTOR,PNP A
549		Q406	5612-646A(C)	XISTOR,PNP A
548		Q409	5613-2240(BL)	XISTOR,NPN R

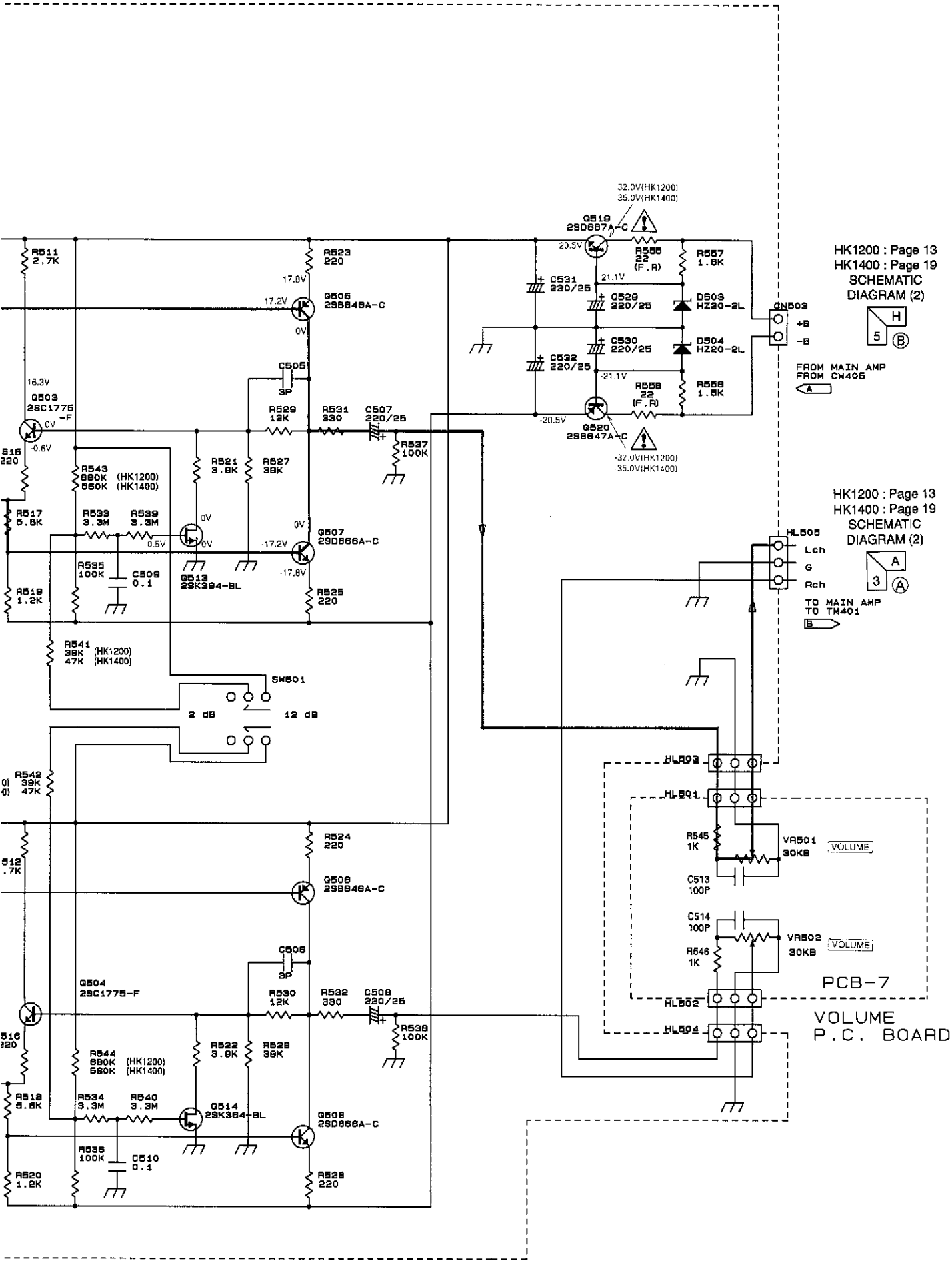
Ser. No.	Ref. No.	Part No.	Description
548	Q410	5613-2240(BL)	XISTOR,NPN R
560	Q411	5613-2240(BL)	XISTOR,NPN R
548	Q412	5613-2240(BL)	XISTOR,NPN R
549	Q413	5612-646A(C)	XISTOR,PNP A
549	Q414	5612-646A(C)	XISTOR,PNP A
550	Q415	5614-666A(C)	XISTOR,NPN A
550	Q416	5614-666A(C)	XISTOR,NPN A
551	Q417	5613-945(K)	XISTOR,NPN R
551	Q418	5613-945(K)	XISTOR,NPN R
546	Q419	5614-667A(C)	XISTOR,NPN A
552	Q420	5614-667A(C)	XISTOR,NPN A
553	Q421	5612-647A(C)	XISTOR,PNP A
553	Q422	5612-647A(C)	XISTOR,PNP A
553	Q423	5612-647A(C)	XISTOR,PNP A
553	Q424	5612-647A(C)	XISTOR,PNP A
552	Q425	5614-667A(C)	XISTOR,NPN A
552	Q426	5614-667A(C)	XISTOR,NPN A
556	Q427	5613-3181(O)	XISTOR,NPN R
556	Q428	5613-3181(O)	XISTOR,NPN R
557	Q429	5611-1264(O)	XISTOR,PNP R
557	Q430	5611-1264(O)	XISTOR,PNP R
548	Q437	5613-2240(BL)	XISTOR,NPN R
548	Q438	5613-2240(BL)	XISTOR,NPN R
		DIODES	
651	⚠ D20	5685-D5SB20	SILICON,BRIG
642	⚠ D21	5631-1S2471	DIODE,DET
642	⚠ D22	5631-1S2471	DIODE,DET
643	D23	5635-HZ6B-1L	DIODE,ZENER
644	D25	5631-1SS133	DIODE,DET
644	D26	5631-1SS133	DIODE,DET
		CONTROLS	
542	VR401	5101-S0801501	RES,SEMI FIX 500
542	VR402	5101-S0801501	RES,SEMI FIX 500
543	VR403	5101-S0801302	RES,SEMI FIX 3K
543	VR404	5101-S0801302	RES,SEMI FIX 3K
		MISCELLANEOUS	
693	CW5	4163-0140024	CONNECTOR W/W
694	CW6	4163-0140025	CONNECTOR W/W
695	CW7	4163-0140027	CONNECTOR W/W
699	CW401	4163-0130027	CONNECTOR W/W
697	CW402	4163-0130025	CONNECTOR W/W
698	CW403	4163-0130026	CONNECTOR W/W
696	CW404	4163-0130024	CONNECTOR W/W
702	CW405	4163-R0202121	CONNECTOR W/W
705	JL403	4132-R0202451	CORD,2C
706	JL404	4132-R0202161	CORD,2C
544	L401	5991-7125	SPRING COIL
544	L402	5991-7125	SPRING COIL
685	TM401	4214-11032	TERMINAL

SCHEMATIC DIAGRAM (1)

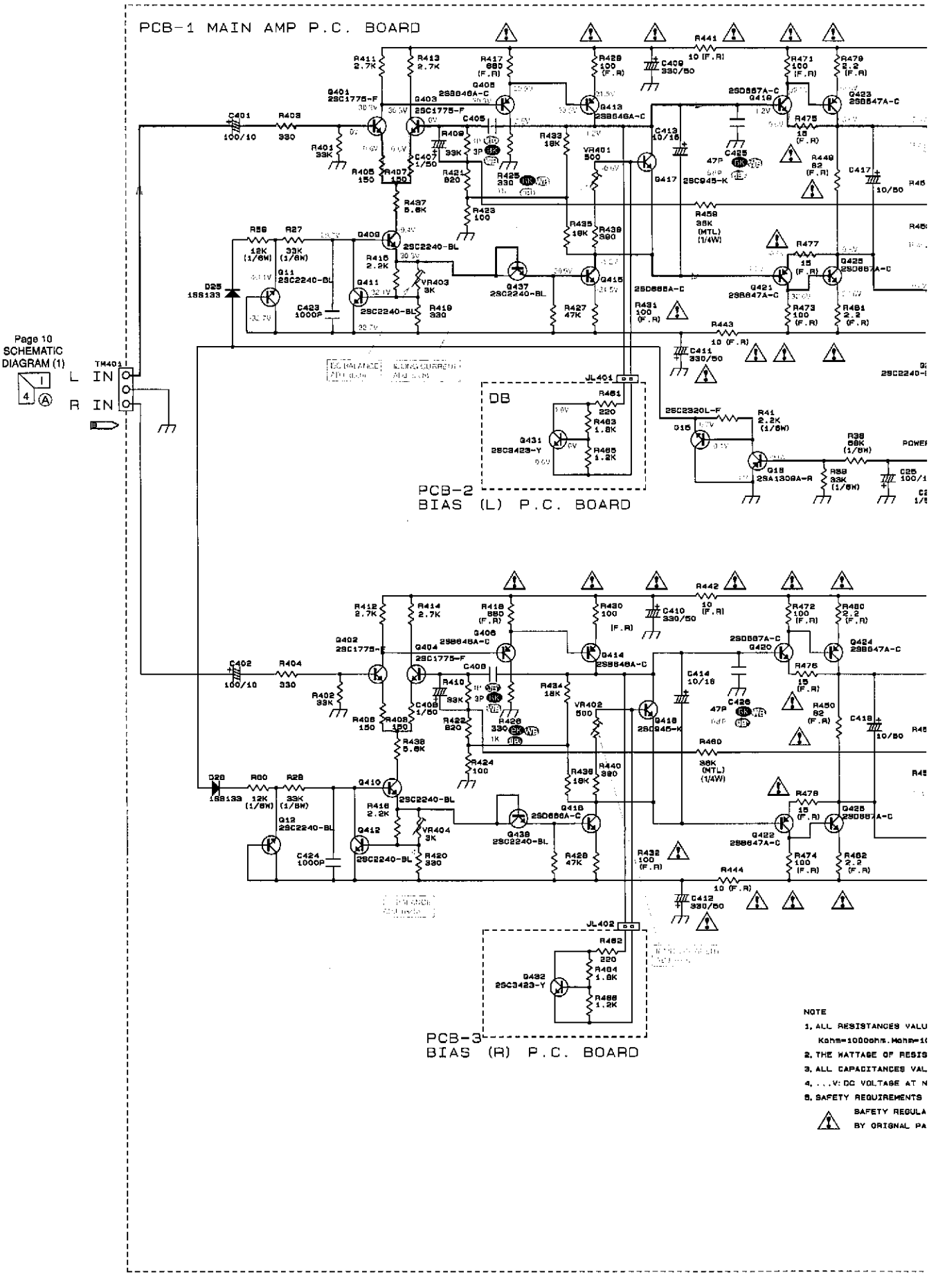


NOTE

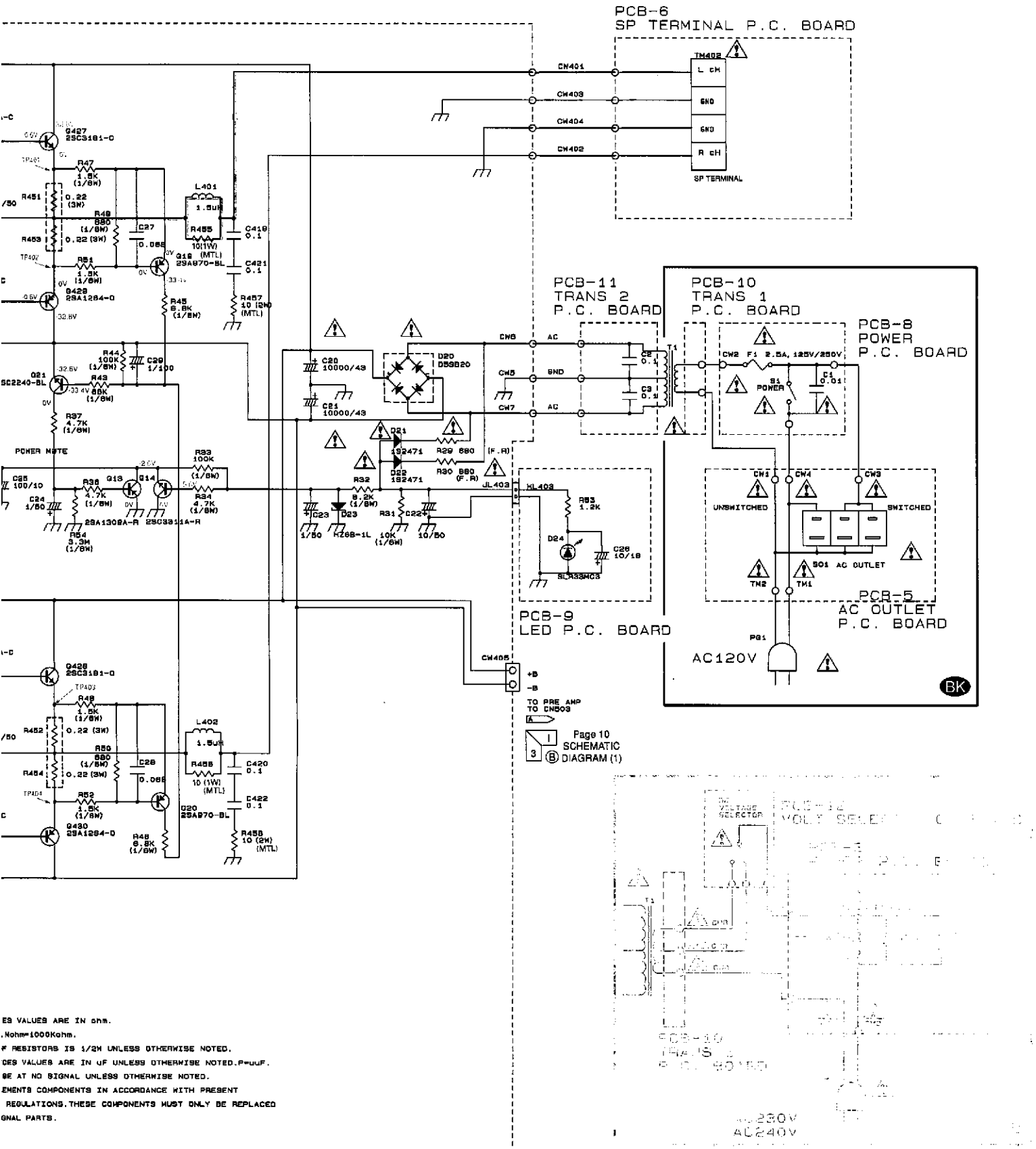
1. ALL RESISTANCES VALUES ARE IN ohm.
   Kohm=1000ohm, Mohm=1000Kohm.
2. THE WATTAGE OF RESISTORS IS 1/2W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCES VALUES ARE IN uF UNLESS OTHERWISE NOTED. P=uuF.
4. ...V: DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
5. SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS. THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGNAL PARTS .


32.0V(HK1200)
35.0V(HK1400)
Q519
2SD687A-C
20.5V
R555
22
(F.R)
R557
1.8K
21.1V
C531
220/25
C529
220/25
D503
HZ20-2L
D504
HZ20-2L
C530
220/25
C532
220/25
-21.1V
R558
22
(F.R)
R556
1.8K
-20.5V
Q520
2SB647A-C
-32.0V(HK1200)
-35.0V(HK1400)
CN503
+B
-B
FROM MAIN AMP
FROM CN405
A
HK1200 : Page 13
HK1400 : Page 19
SCHEMATIC
DIAGRAM (2)
H
5
B
R511
2.7K
R523
220
17.8V
17.2V
Q505
2SB648A-C
0V
C505
3P
16.3V
Q503
2SC1775
-F
0V
-0.6V
R529
12K
R531
330
C507
220/25
R537
100K
R543
680K (HK1200)
560K (HK1400)
R521
3.9K
R527
39K
R517
5.6K
R533
3.3M
R539
3.3M
0V
0V
0.5V
0V
0V
-17.2V
-17.8V
Q507
2SD666A-C
Q513
2SK364-BL
R535
100K
C509
0.1
R519
1.2K
R525
220
R541
39K (HK1200)
47K (HK1400)
SW501
2 dB
12 dB
HK1200 : Page 13
HK1400 : Page 19
SCHEMATIC
DIAGRAM (2)
A
3
A
HL505
Lch
G
Rch
TO MAIN AMP
TO TM401
B
R542
39K
47K
HL503
HL501
R545
1K
VR501
30KB
VOLUME
C513
100P
C514
100P
VR502
30KB
VOLUME
R546
1K
PCB-7
HL502
HL504
VOLUME
P.C. BOARD
R524
220
Q506
2SB648A-C
C506
3P
Q504
2SC1775-F
R530
12K
R532
330
C508
220/25
R538
100K
R544
680K (HK1200)
560K (HK1400)
R522
3.9K
R528
39K
R518
5.6K
R534
3.3M
R540
3.3M
Q514
2SK364-BL
Q508
2SD666A-C
R536
100K
C510
0.1
R520
1.2K
R526
220

SCHEMATIC DIAGRAM (2) (MODEL : HK1200)

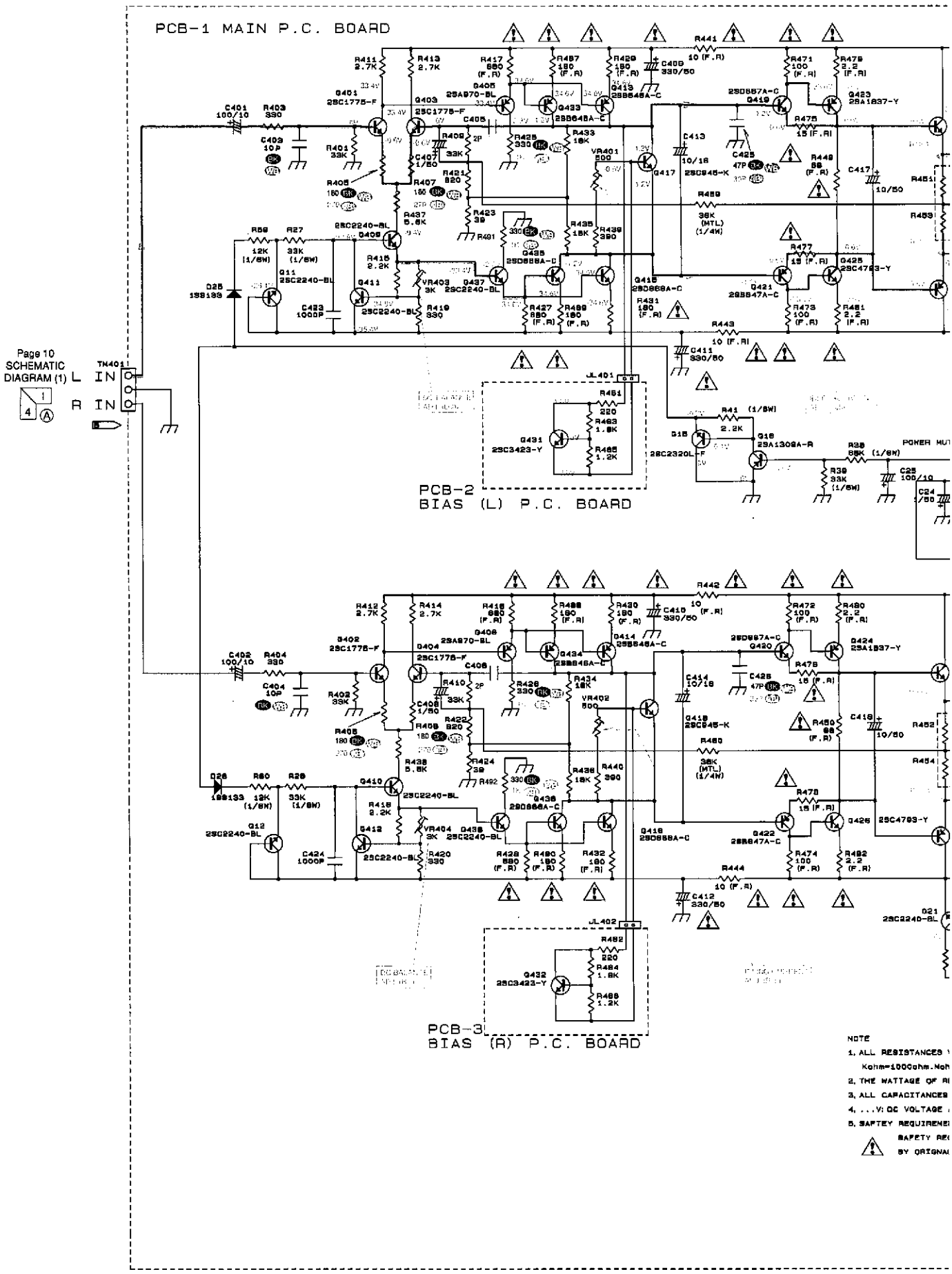


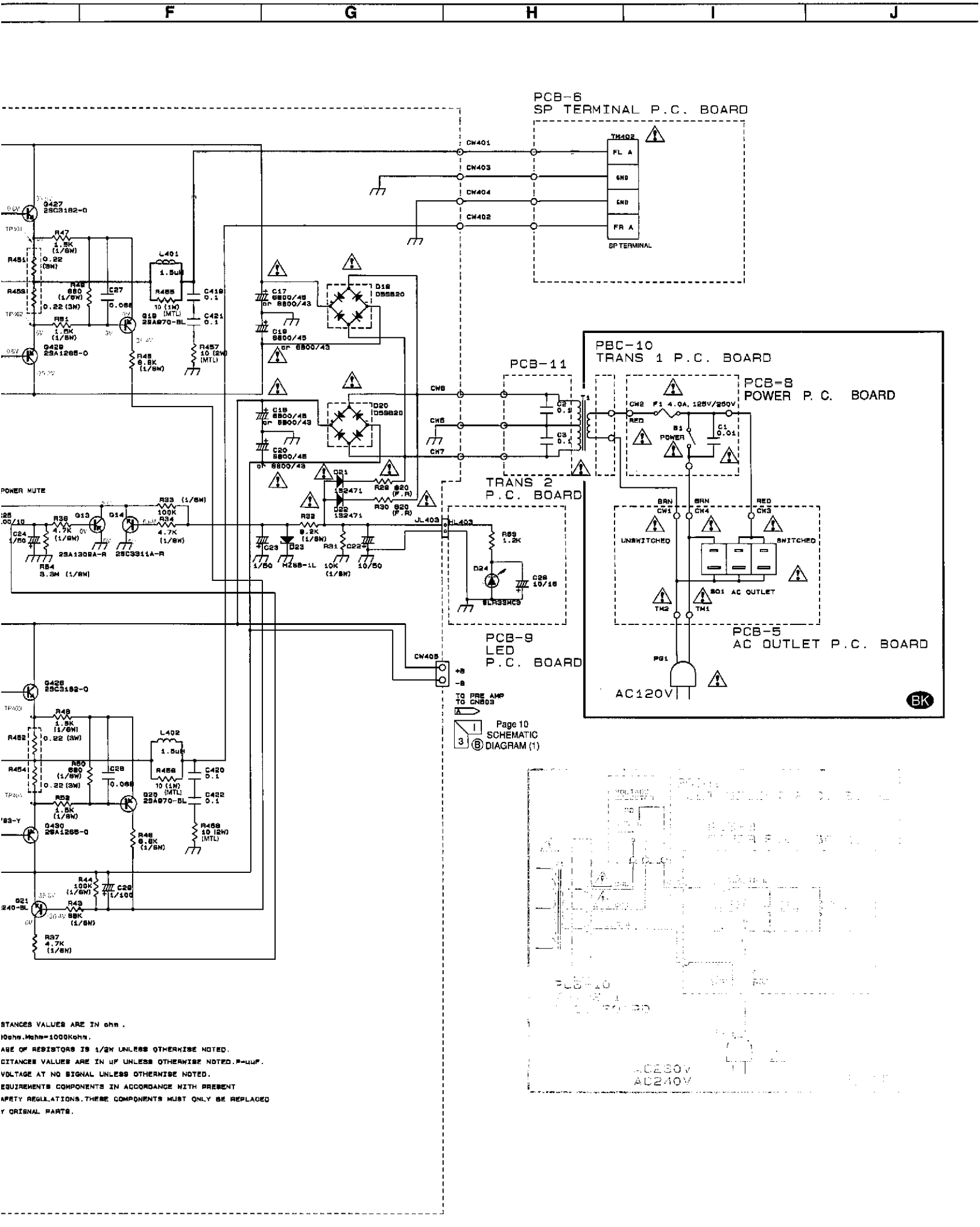
F G H I J



ES VALUES ARE IN ohm.
.Mohm=1000Kohm.
F RESISTORS IS 1/2W UNLESS OTHERWISE NOTED.
DES VALUES ARE IN uF UNLESS OTHERWISE NOTED.P=uuF.
GE AT NO SIGNAL UNLESS OTHERWISE NOTED.
EMENTS COMPONENTS IN ACCORDANCE WITH PRESENT
REGULATIONS.THESE COMPONENTS MUST ONLY BE REPLACED
GNAL PARTS.

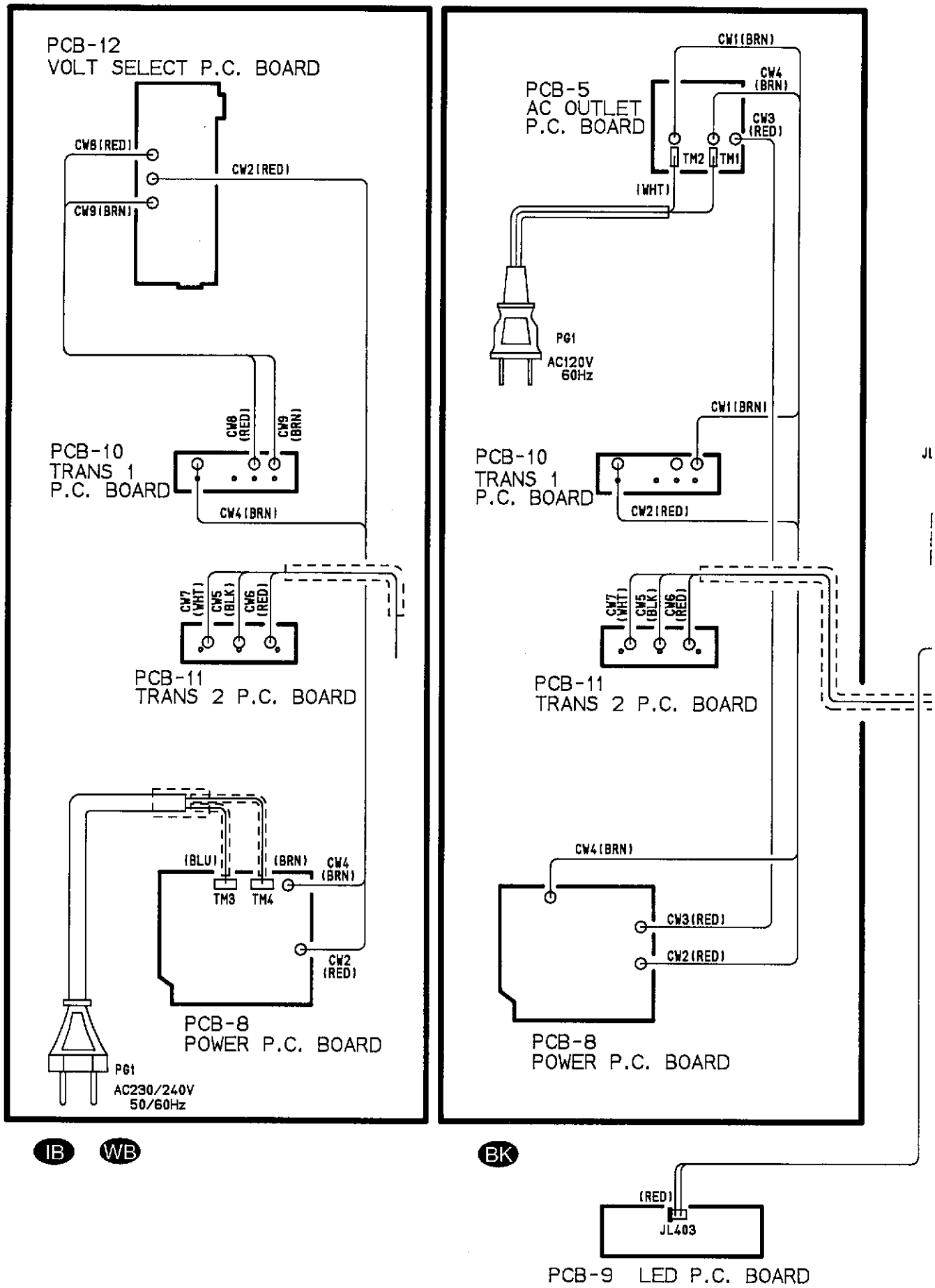
SCHEMATIC DIAGRAM (2) (MODEL : HK1400)

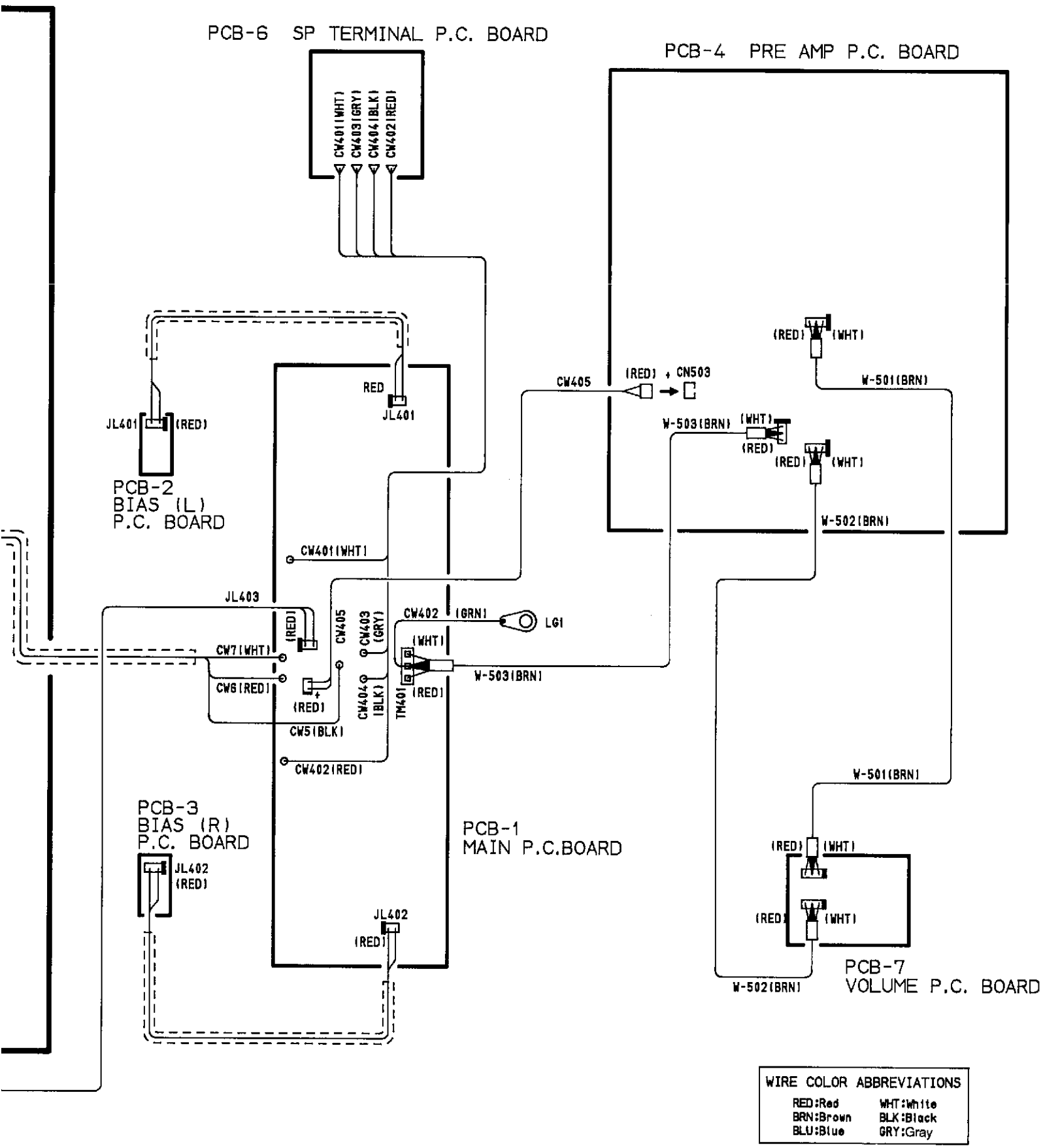




STANCES VALUES ARE IN ohm .
)ohm.Mohm=1000Kohm.
ASE OF RESISTORS IS 1/2W UNLESS OTHERWISE NOTED.
CITANCES VALUES ARE IN uF UNLESS OTHERWISE NOTED.P=uuF.
VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
EQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT
AFETY REGULATIONS.THESE COMPONENTS MUST ONLY BE REPLACED
Y ORIGNAL PARTS.

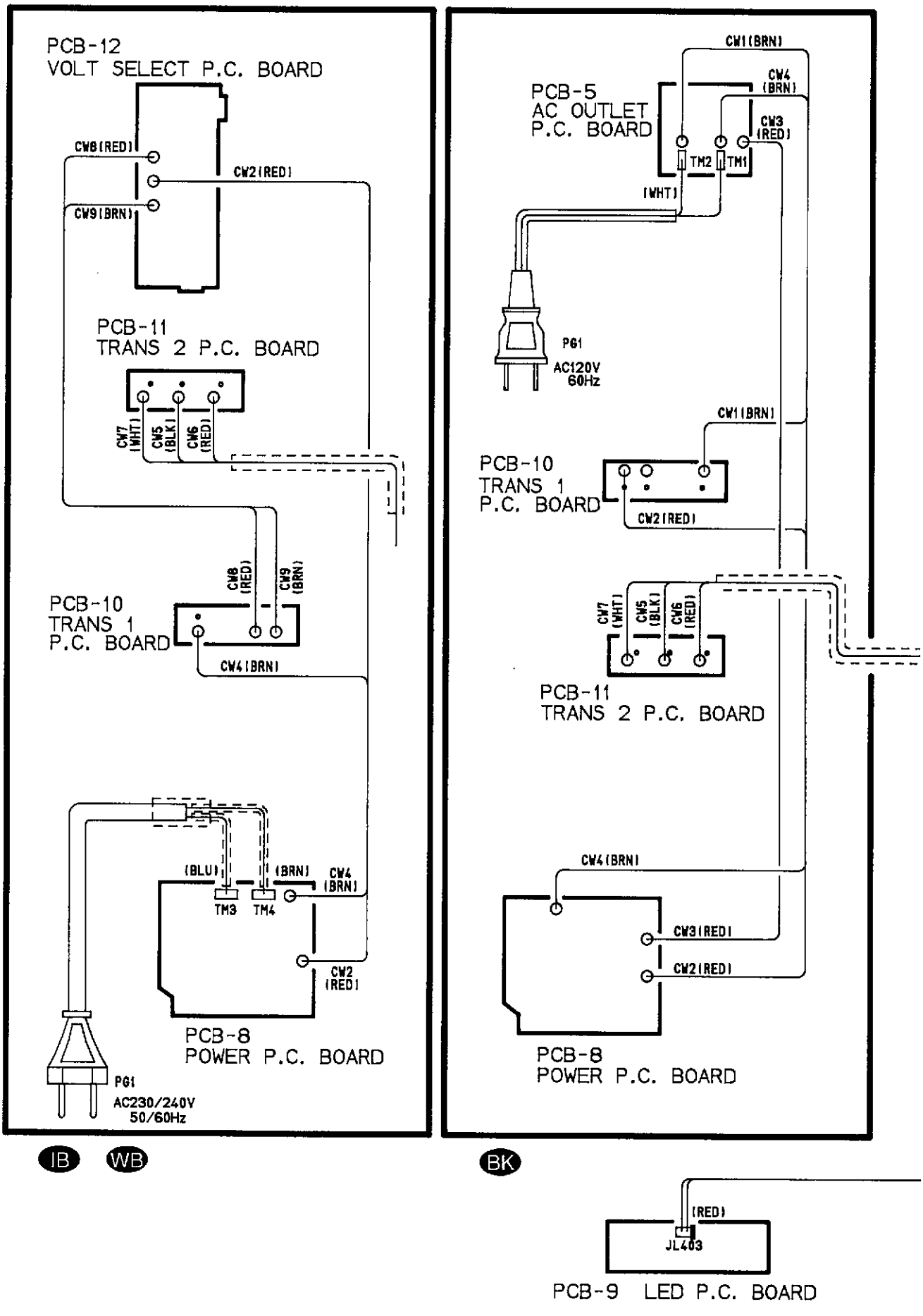
WIRING DIAGRAM (MODEL : HK1200)

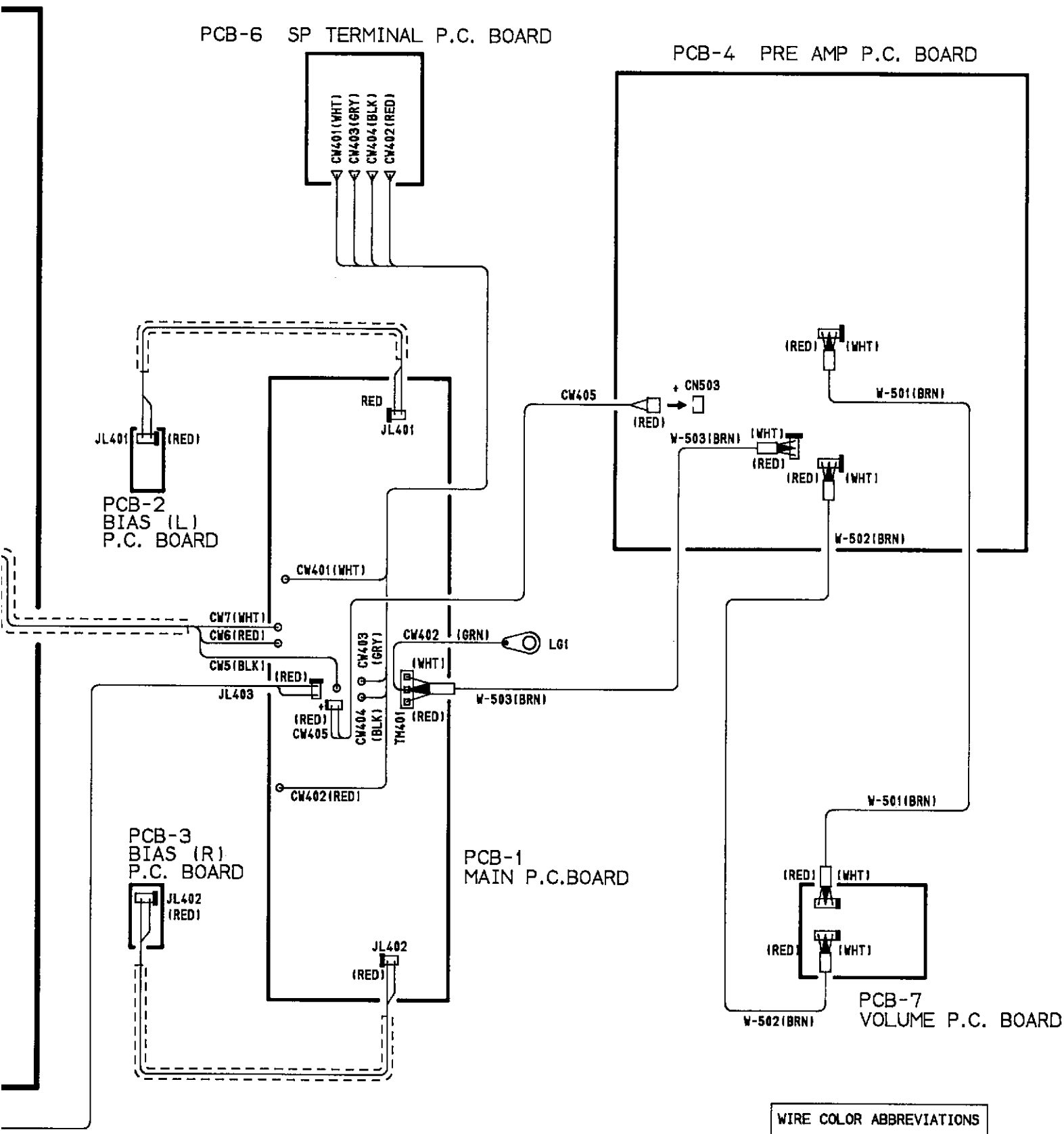




WIRE COLOR ABBREVIATIONS	
RED:Red	WHT:White
BRN:Brown	BLK:Black
BLU:Blue	GRY:Gray

WIRING DIAGRAM (MODEL : HK1400)





WIRE COLOR ABBREVIATIONS	
RED:Red	WHT:White
BRN:Brown	BLK:Black
BLU:Blue	GRY:Gray